# ATTACHMENT D

I. December 21, 2000, Regional Board Staff Inspection Report

II. January 2, 2001, 13267 Request for Technical Information to Caltrans District 12

III. February 16,200,response to 13267 request

I.

SAN DIEGO REGIONAL WATER QUALITY CONTROL BOARD MEMORANDUM

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|---|---|
| **TO:** | BOB MORRIS, SENIOR WRC ENGINEER |
| **FROM:** | ELIZABETH LAIR WILLIAMS, ENVIRONMENTAL SPECIALIST |
| **SUBJECT:** | SITE INSPECTION OF POST CONSTRUCTION BMPS SERVICING HIGHWAY 73 IN THE AREA OF LAGUNA BEACH |
| **DATE:** | 01/25/01 |
| **CC:** | JOHN ROBERTUS, EXECUTIVE OFFICER |

In response to a concerns raised by a local municipality, Christopher Means, Environmental Specialist, and I inspected post construction BMPs maintained by Caltrans which service highway 73 on December 21, 2000 at 1:00 pm. Derek Wieske, Assistant City Manager, City of Laguna Beach, accompanied us for the entire inspection. There were multiple violations of Municipal Permit Order No. 99-06-DWQ, NPDES No. CA S000003. Violations included but were not limited to:

1. Failure to maintain BMPs
2. Threatened discharge of waste to waters of the State which may cause a condition of pollution or nuisance

I recommend that a Section 13267 letter be issued to Caltrans to request information on their maintenance and monitoring plan. Please see the attached digital images, which illustrate typical violations observed on the inspection.

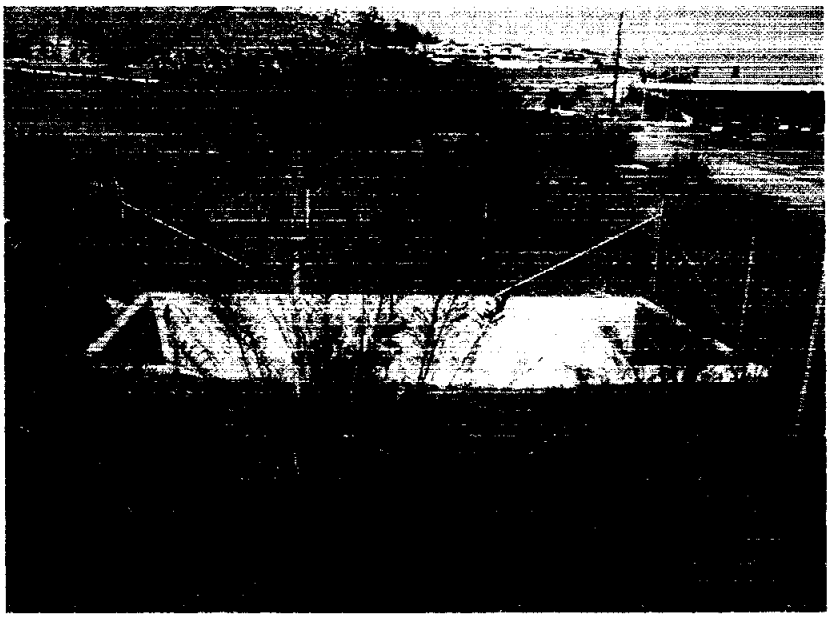

IMAGE 1

Storm Water Treatment Area for Toll Road 73 outside of Laguna Beach on El Torro Road

IMAGE 2

Storm Water Treatment Area for Toll Road 73 outside of Laguna Beach on El Torro Road.

- BMP is suspected to be overloaded with hydrocarbons and is no longer functioning as it was designed
- BMP was not maintained and cleaned prior to the rainy season

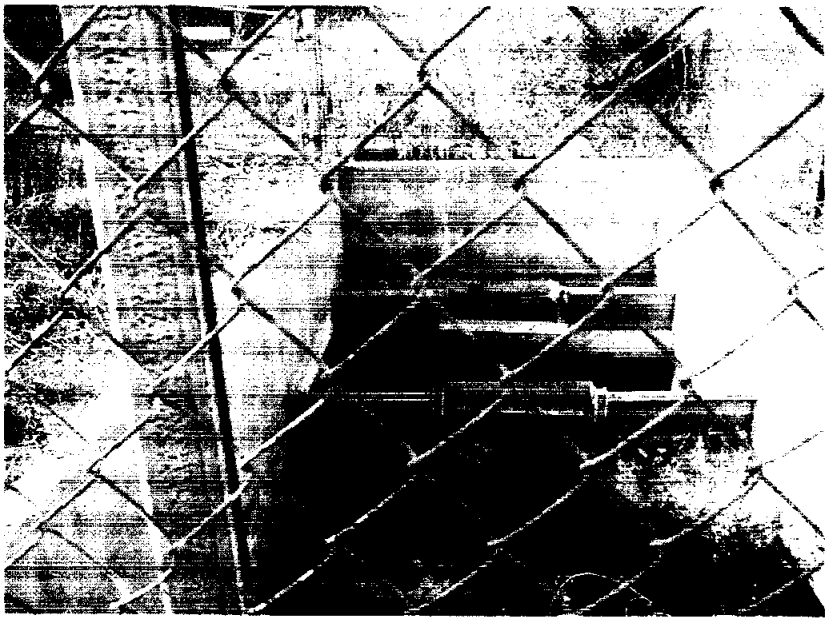

IMAGE 3

Storm Water Treatment Area for Toll Road 73 outside of Laguna Beach on El Torro Road.

- Growth of vegetation illustrates the over loading of the BMP with sediments
- Broken weirs are visible

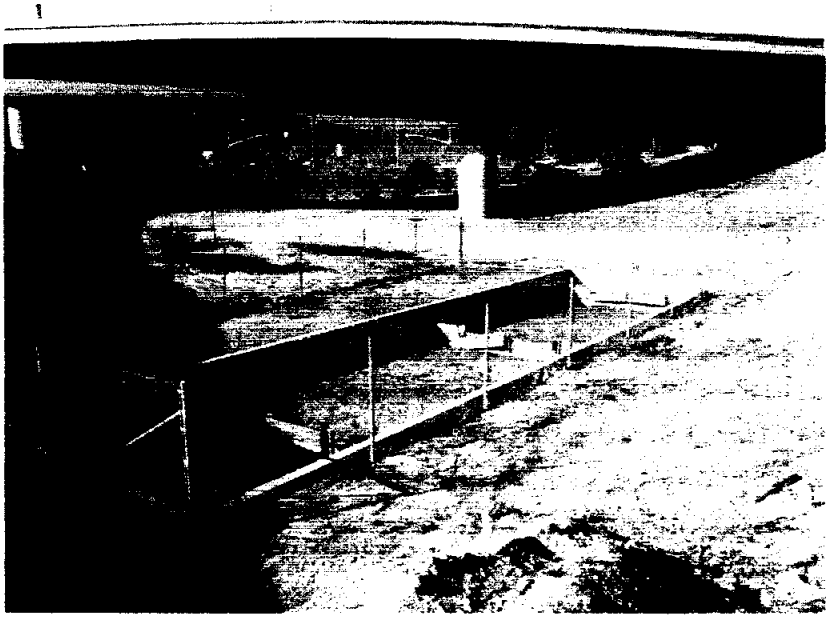

IMAGE 4

Storm Water Treatment Area near the on ramp from El Toro Road to Toll Road 73.

- Discoloration is suspected to illustrate overloading of the BMP with hydrocarbons and a lack of a proper maintenance program

IMAGE 5

Storm Water Treatment Area near the on ramp from El Toro Road to Toll Road 73. This picture illustrates the sediment treatment pond which works in conjunction with the BMP pictured in Image 4.

# California Regional Water Quality Control Board
## San Diego Region

Winston H. Hickox
*Secretary for Environmental Protection*

Internet Address: http://www.swrcb.ca.gov/~rwqcb9/
9771 Clairemont Mesa Boulevard, Suite A, San Diego, California 92124-1324
Phone (858) 467-2952 • FAX (858) 571-6972

Gray Davis
*Governor*


January 2, 2001

CERTIFIED MAIL NO. Z 068 636 728
(RETURN RECEIPT REQUESTED)

California Department of Transportation
Attn: Joseph Hecker, District Division Chief
District Division of Operations & Maintenance
3347 Micehlson Drive, Ste. 100
Irvine, CA 92612

Dear Mr. Hecker:

**RE: REQUEST FOR TECHNICAL REPORT**

Enclosed is a December 21, 2000 inspection report for a site inspection of post construction BMPs associated with the San Joaquin Hills Toll Road (SR 73) in the area of Laguna Beach. That investigation, which was in response to concerns raised by a local municipality, included, but was not limited to, an inspection on December 21, 2000 and interviews with interested parties. During the inspection, staff observed and documented the conditions of the post-construction Best Management Practices (BMPs) and apparent failure of their ability to treat polluted runoff discharging into Laguna Canyon Creek. Please see the attached digital images, which illustrate typical violations observed on the inspection.

Pursuant to California Water Code Sections 13267 & 13383, CALTRANS is directed to submit a detailed technical report to this office on or before January 31, 2000. The technical report shall include the following information:

*Current Activities*

1. Maps showing the location and type of all structural post construction BMPs that are associated with San Joaquin Hills Toll Road (SR 73).

2. A copy of the CALTRANS maintenance and monitoring plan for the structural post construction BMPs associated with SR 73.

3. Any technical reports or studies evaluating the effectiveness of the structural BMPs currently being implemented along SR 73 to ensure that the discharge of pollutants to the storm water conveyance system or waters of the nation is prevented.

*Historical Activities*

4. A brief history of monitoring and maintenance activities that have occurred in regards to BMPs associated with SR 73.

*Future Activities*

5. A description of and schedule for steps that CALTRANS will take to prevent illicit/illegal discharges of pollutants to the Laguna Canyon Creek from BMPs associated with SR 73.

Submit the requested information to the SDRWQCB in a written report. The submitted report shall include the following signed certification:

> *I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*

Failure to submit the above information by the date requested may result in the imposition of administrative civil liability pursuant to CWC § 13268. Questions pertaining to the issuance of this request for information should be directed to Christopher Means at (858) 637-5581. Written correspondence pertaining to this document should be directed to me.

Respectfully,

for JOHN H. ROBERTUS
Executive Officer
San Diego Regional Water Quality Control Board

Enclosures: December 20, 2000 Inspection Report

cc: (w/ enclosures)
City of Laguna Beach

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**DEPARTMENT OF TRANSPORTATION**

DISTRICT 12
3347 MICHELSON Dr. Ste. 100
IRVINE, CA 92612-1692

February 16, 2001

John H. Robertus, Executive Officer
San Diego Regional Water Quality Control Board
9771 Clairemont Mesa Blvd., Suite A
San Diego, CA 92124-1324



Re: Request for Technical Report Regarding the Post Construction BMPs at the San Joaquin Hills Toll Road, Letter dated January 2, 2001

We appreciate the meeting with Caltrans staff on February 9th to discuss the operation and maintenance of the post construction BMPs including the detention basins and Compost Storm Water Filters (CSFs) at the San Joaquin Hills Toll Road (SR-73). This letter is in response to your letter dated January 2, 2001, addressed to Joseph Hecker and the comments received during the meeting.

The California Department of Transportation (Caltrans) has been cognizant of the condition of the post construction BMPs at SR-73. We have investigated the functioning of these BMPs and conveyed our observations to the Board in a letter addressed to Mr. John H. Robertus, dated November 7, 2000 (Attachment A). These concerns also led us to initiate an evaluation of the Compost Storm Water Filters which was completed on January 11, 2001 (Please see Attachment F).

We are always interested in improving the effectiveness of our BMPs. In the future, we will be investigating other types of treatment devices that are being used by the neighboring municipal permittees, including the County of Orange and the cities of Laguna Beach, Laguna Niguel, Irvine, Newport Beach, Anaheim and Huntington Beach. We also plan to participate in the ongoing "partnering" sessions organized by these agencies to exchange information on the issues related to storm water runoff treatment, the approaches taken and treatment devices installed, monitoring and maintenance issues, effectiveness of the units, costs associated with installation and maintenance, funding sources, and pro-active approaches that could be taken in the future.

Following is our response in the same sequence of items identified in the subject letter:

## Current Activities

**1. Maps showing the location and type of all structural post construction BMPs that are associated with San Joaquin Hills Toll Road (SR-73).**

Enclosed are the maps **(Attachment B)** showing the location of the detention basins and CSFs within the jurisdictional area of the San Diego Region that were installed at SR-73. These maps also show the storm drains directing highway runoff into the detention basins/CSFs, and those that are directly discharging off-site drainage into the drainage channels or receiving streams. Table 1 (Attachment B) shows a listing of the 20 CSFs located within the San Diego Region area and Table 2 presents a brief summary of the observations made during the inspections conducted in September 2000.

**2. A copy of the CALTRANS maintenance and monitoring plan for the structural post construction BMPs associated with SR-73.**

Following attachments pertaining to this item are enclosed:

**Attachment C - Compost Storm Water Filters, Operations and Maintenance Manual, November 1996:**

This report includes brief description of various components of the CSF units, theory of operation and recommended operation and maintenance procedures. The maintenance of the CSFs includes two different levels: 1) Inspection with minor maintenance, and 2) Major maintenance. Monitoring the operation of the CSF units is part of the inspection/minor maintenance activity, which includes visual inspection of the inlet chamber, compost filter cells, baffles and outlet chamber for obstructions, debris pile up and sediment accumulation. Detailed description of these maintenance activities including the timing and frequency are presented in this report.

**Attachment D - Maintenance BMPs**

This attachment shows the pertinent BMPs applicable for highway maintenance, that were extracted from the **Maintenance Staff Guide, Caltrans Storm Water Quality Handbooks, CTSW-OT-97-8-V4, July 1998.** These BMPs are implemented throughout the SR-73 toll road.

**Attachment E - Spills of Substances on Highway Right of Way**

The procedures to be implemented for cleanup of spills, transportation and disposal of spilled waste material are documented in the **Maintenance Manual, Volume One, Caltrans, June 1998.** Attachment D includes Chapter D5 from this reference that consists of handling the spilled substances.

**3. Any technical reports or studies evaluating the effectiveness of the structural BMPs currently being implemented along SR-73 to ensure that the discharge of pollutants to the storm water conveyance system or waters of the nation is prevented.**

Following are the technical reports and studies that address this item:

**Attachment F - Evaluation of Compost Storm Water Filters (CSFs) Installed Along the San Joaquin Hills Transportation Corridor, Caltrans, CTSW-RT-00-034, January 11, 2001**

This report describes an evaluation of the effectiveness of the detention basins and CSFs including a summary of the findings. A CD-ROM containing the photos of the CSF units is also included in this report. The maps and tables included in Attachment A have been extracted from this report.

**Attachment G - Compost Storm Water Filters (CSFs), Bonita Canyon & North Hollywood Maintenance Yard, Storm Water Monitoring, 1997/1998 Wet Season, Caltrans, June 1998**

Caltrans has monitored five separate storm events during the 1997-1998 wet season at the inlets and outlets of two separate CSF systems, one of which being the Bonita Canyon CSF located on the inside of the circular off-ramp of the southwest Bonita Canyon Drive from SR-73. Attachment G shows the approximate location of the Bonita Canyon CSF, summary of sampled storm events, summary of sampling results for various water quality constituents, and an overall summary of the results.

Table 9-15 (Attachment G) depicts a comparison of the influent and effluent constituents based on the mean concentrations of the five storm events monitored. These results indicated that the Bonita Canyon CSF was capable of reducing the concentration of total suspended solids, Chemical Oxygen Demand, total petroleum hydrocarbon (Diesel), oil & grease and fecal coliform bacteria. The removal efficiencies for metal constituents were lower, and there was wide variation in the removal efficiencies. However, there was an increase of concentration of nutrient compounds as the runoff passed through the filter medium, e.g., dissolved phosphorous, total phosphorous, nitrite and nitrate. Therefore, it suggests that the CSF (Filter medium) contributed to the production of the nutrient compounds, which are likely to be undesirable for mixing with the downstream receiving waters.

## Historical Activities

**4. A brief history of monitoring and maintenance activities that have occurred in regards to BMPs associated with SR-73.**

**Attachment H** shows a table which summarizes the monitoring and maintenance activities performed by the Caltrans maintenance team on the SR-73 toll road including the detention basins and the CSFs. The table depicts the date of work, type of monitoring and/or maintenance work performed, number of manhours and post miles on SR-73 where the work was performed. Our maintenance work has been performed in accordance with the following approved BMPs:

- Storm Water Drainage System Facilities Inspection and Cleaning
- Detention Basin and Infiltration Device Maintenance
- Illicit Connection Detection, Reporting & Removal
- Highway and Freeway Cleaning
- Illegal Dumping Control
- Sweeping Operations
- Litter and Debris Removal
- Anti-Litter Signs
- Emergency Response and Clean-Up Practices
- Graffiti Removal
- Adopt-A-Highway Program
- Vegetation Management
- Chemical Weed Control (On a reduced scale)
- Mechanical Weed Control
- Tree and Shrub Pruning
- Tree and Shrub Removal
- Brush Chipping
- Water Line Repairs
- Irrigation (Watering) Potable and Non-Potable
- Erosion Control
- Non-Storm Water Discharges

**Attachment I** presents the weight or volume of trash picked up from SR-73 by the Adopt-A-Highway Program participants from January 2000 through January 2001. This Program contributes partially to keep our highways free from litter, that could otherwise enter the storm water runoff.

**Attachment J** pertains to the cleanup of eight (8) CSF units during January and February 2000. The cleanup procedure included vacuuming the top layer of sediment (if present) and the filter medium with a Vacuum Truck, replacing the old filter fabric with a new one, and then filling the space with new filter material with a backhoe and then spreading it evenly on the surface with hand-operated rakes. The first page of Attachment J shows the CSF#, Post Mile, volume of compost filter material replaced and cost for each CSF unit. The entire procedure takes approximately 170 to 200 hours per CSF unit, depending upon the size of the CSF unit and complexity of access for the operating equipment. The total volume of the new compost filter material replaced for the eight (8) CSF units was approximately 440 cubic yards, at a total cost of $110,000, excluding the labor and equipment charges.

The subsequent pages of this attachment show the laboratory test results for the compost filter material extracted from the eight CSF units. As the results indicated that the constituents were non-hazardous, the removed material was used as mulch in some of the landscaped areas on SR-73.

## Future Activities

**5. A description of and schedule for steps that CALTRANS will take to prevent illicit/illegal discharges of pollutants to the Laguna Canyon Creek from BMPs associated with SR 73.**

As shown in the Attachment G, the storm water monitoring and sampling performed during the 1997/1998 wet season at the Bonita Canyon CSF system, indicates that the CSF medium substantially increases the concentration of nitrates, nitrites and phosphorous in the effluent from the CSF. However, we were unable to find the recorded data relative to the acceptable levels of loading for the Bonita Canyon Creek. The investigations performed on the effectiveness of the detention basins and CSFs (Attachment F), and our experience in replacing the filter medium on eight CSF units (Attachment J) indicate that the CSF units clog frequently impeding the treatment efficiency, and replacing the filter medium is an expensive and labor intensive activity.

Even though, the CSFs were determined to be the effective treatment devices suitable for SR-73 during the design and construction period of the project, it is now evident that they are not functioning properly and are not appropriate devices for storm water treatment at this project. However, there are other storm water treatment devices available from private vendors. But most of these devices are either recent inventions, or retrofitted units based on existing sanitary treatment devices. Consequently, they do not have either long-term performance record or well established theoretical and experimental bases. In essence, there is no single treatment device/technology that is perfectly suited for any given drainage location. Each type has its own pros and cons, and their performance and effectiveness should be investigated on a case-by-case basis for our specific application. Further, the County of Orange and other local governmental agencies have installed a few of these other devices in their drainage systems, although their effectiveness and performance are not well established. Therefore, we intend to address the subject issues by proposing the following plans:

**Water Quality Monitoring**

Even though, the quality of inflow and effluent was tested at the Bonita Canyon CSF during the 1997/1998 wet season, additional monitoring and testing may be required to establish the treatment capability of the CSF units at SR-73. Therefore, we are planning to implement a systematic water quality monitoring program at a few selected CSF systems along SR-73 to further investigate the quality of highway runoff entering the existing detention basin-cum-CSF systems and the quality of effluent from these devices. This plan may include collection of runoff samples during a few rain storms at the inlet and outlet locations of the selected detention basin/CSF units, laboratory testing and analysis of the results. The results of this program will be utilized to determine whether any treatment is needed for the runoff from SR-73, and if so what are the suitable alternative treatment solutions.

- Tentative Schedule: 2 Years

**Interim Plan**

Caltrans would like to propose an Interim Plan to address the immediate issues related to the functioning of the detention basins and CSFs. This plan may include decommissioning a few selected CSF units by removing the filter medium and modifying the connected detention basins to route the flow into the receiving drainage channel or pipe. Even though the runoff may not be passing through the CSF's filter medium, the detention basins will continue to provide treatment, consistent with the approved BMPs described in the Caltrans Storm Water Management Plan (SWMP). The other CSFs will be utilized to monitor the water quality as described in the foregoing Monitoring Plan.

- Tentative Schedule: 2 Years

**Permanent Plan**

The Permanent Plan being proposed herein may involve the design, installation, and monitoring of new storm water treatment devices and technologies, either separate from or in conjunction with a few other critical existing basins and CSFs. These new treatment devices/technologies need to be studied and monitored to determine the long-term appropriateness at each site. After a probable testing period of two to four years, the results of these new technologies will be assessed. Each site need to be further examined and a site-specific determination need to be made to (a) keep the existing treatment devices (CSFs) (b) remove the existing and replace with another device/ technology that has been tested or (c) use a detention basin as in the Interim Plan. The new treatment technologies being considered for the Permanent Plan may include, but may not be limited to, the following:

- Chemical treatment to improve settling
- Various devices such as floating skimmers, baffles, oil/water separators, etc.
- Detention basin optimization by different sizes, settling and travel times
- Alternative media gravity filters with adsorbing materials
- Tentative Schedule: 2 to 4 Years

Based on the existing condition of the detention basins and CSFs (Attachment F), and further field inspections, preliminary decisions will be made concerning which treatment technology could be used at which particular site.

As a public agency, Caltrans is strongly interested in the protection, preservation and enhancement of the environment, with the primary objective of constructing and operating State highway facilities with concern for efficient and safe travel. While we are fully supportive of the pro-active environmental and engineering solutions into our highway system, it is absolutely vital to understand that any of our foregoing proposals are subject to changes due to budgetary, engineering, environmental, or operational considerations.

If you have any questions or if you need additional information, please call Grace Pina-Garrett, Chief of NPDES Branch at (949) 724-2189.

*I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that*

*qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*

Sincerely,

Ken Nelson, P.E.
Interim Director, District 12

C: Christopher Means w/o attachments